

The Possible Role of the Endoneurial Fibroblast-like Cells in Resolution of the Endoneurial Edema Following Nerve Crush Injury

Authors : Faris M. Altaf and Abdullah M Elkeshy

Abstract : Forty-two albino male rats aged between 30 and 40 days (weighted 200 g to 250 g) were used in the present study. The left sural nerves of 36 rats were subjected to crush injury at 1 to 6 weeks intervals using 6 animals at each interval. The right and left sural nerves of the rest 6 rats were used as a control. After 2 weeks of the crush injury, the endoneurium showed channel-like spaces that were lined by the fibroblast-like cells and collagen bundles. These channels contained degenerated myelin and were connected with the perivascular and subperineurial spaces. Some of the flattened fibroblast-like cells were arranged in several layers in the subperineurial and perivascular spaces, forming barrier-like cellular sheets localizing the endoneurial edema in these spaces. Fibroblast-like cells also wrapped the regenerating nerve fibers by their branching cytoplasmic processes. At the end of the third week, the flattened fibroblasts formed nearly continuous sheets in the subperineurial and perivascular spaces. Macrophages were frequently noticed between these cellular barrier-like sheets and in the subperineurial and perivascular spaces. Conclusion: it could be concluded that the endoneurial fibroblast-like cells form barrier-like cellular sheets that localized the endoneurial edema in the subperineurial and perivascular spaces and create also the endoneurial channel-like spaces containing degenerated myelin and endoneurial edema helping the resolution of such edema.

Keywords : sural nerve, endoneurial fibroblast-like cells, endoneurial edema, barrier-like and channel-like spaces

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